northwest Clean Air agency

1600 South Second Street
Mount Vernon, WA 98273-5202
ph 360.428.1617
fax 360.428.1620
www.nwcleanair.org

Air Operating Permit
Excess Emissions Report
Form Part II

Name of Facility	Shell, Puget Sound Refinery	Reported by	Tim Figgie
Date of notification	April 13, 2011	Incident type: breakdown/ upset/startup or shutdown	Startup/Breakdown
Start Date	April 13, 2011	Start Time:	00:20 AM
End Date	April 13, 2011	End Time:	6:00 AM
Process unit or system(s): SRU 3			

Incident Description

On April 13, 2011 SRU3 exceeded the 12-hour rolling average 250 ppmv stack SO2 limit during startup of the unit after it had been down for maintenance. The initial high stack SO2 readings resulted from a plugged impulse line to the SCOT stripper overhead pressure transmitter and the inability for the unit to step into 'Reverse Mode' due to a PLC logic power issue. This required Operations to manually trip the unit to reset the PLC resulting in automatic bypass of the tail gas unit and high SO2 emissions in the incinerator stack. Once the unit was tripped there was no amine acid gas feed in the unit.

The investigation into the cause of this event found that the PLC malfunctioned due to a bad power card, which resulted in oxygen inlet valves being stuck open, preventing restart of the unit. Had Operations been able to restart the unit without tripping it, the 12 hour rolling average would likely not have been exceeded.

To prevent a reoccurrence of this event Instrument Technicians will check the Hiway/Box conditions prior to startup activities. This would help to identify a bad PLC card power source.

Immediate steps taken to limit the duration and/or quantity of excess emissions:

The full amine acid gas feed was immediately routed to SRU4.

Applicable air operating permit term(s): 5.8.15

Estimated Excess Emissions:	Pollutant(s):	Pounds (Estimate):
Based on SO2 CEMS and calculated stack flow	SO2	82

The incident was the result of the following (check all that apply):

- ☒ Scheduled equipment startup
- ☐ Scheduled equipment shutdown
- ☐ Poor or inadequate design
- ☐ Careless, poor, or inadequate operation
- ☐ Poor or inadequate maintenance
- ☐ A reasonably preventable condition

Did the facility receive any complaints from the public?

- ☒ No
- ☐ Yes (provide details below)

Did the incident result in the violation of an ambient air quality standard

☒ No
☐ Yes (provide details below)

Root and other contributing causes of incident:

The root cause of this incident was a failed PLC power card preventing operations from immediately restarting the unit.

The root cause of the incident was:
(The retention of records of all required monitoring data and support information shall be kept for a period of five years from the date of the report as per the WAC regulation (173-401-615))

☒ Identified for the first time
☐ Identified as a recurrence (explain previous incident(s) below – provide dates)

Are the emissions from the incident exempted by the NSPS or NESHAP "malfunction" definitions below?

☐ No
☒ Yes (describe below)

A failed PLC power card prevented operations from immediately restarting the unit.

Definition of NSPS "Malfunction": Any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or failure of a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. 40 CFR 60.2
Definition of NESHAP "Malfunction": Any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. 40 CFR 63.2

Analyses of measures available to reduce likelihood of recurrence (evaluate possible design, operational, and maintenance changes; discuss alternatives, probable effectiveness, and cost; determine if an outside consultant should be retained to assist with analyses):

To prevent a reoccurrence of this event Instrument Technicians will check the Hiway/Box conditions prior to startup activities.

Description of corrective action to be taken (include commencement and completion dates):

See above

If correction not required, explain basis for conclusion:

See above

Attach Reports, Reference Documents, and Other Backup Material as Necessary. This report satisfies the requirements of both NWCAA regulation 340, 341, 342 and the WAC regulation (173-400-107).

Is the investigation continuing? ☒No ☐Yes
Is the source requesting additional time for completion of the report? ☒No ☐Yes

Based upon information and belief formed after reasonable inquiry, I certify that the statements and information in this document and all referenced documents and attachments are true, accurate and complete.

Prepared By: _ Jason Smolsnik__ Date: ___April 27, 2011

Responsible Official or Designee: Susan G Kraeer Date: 5/31/11